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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/973,778	10/11/2001	Luc Ouellet	12251-US	7550
23553	7590	06/09/2004	EXAMINER	
MARKS & CLERK P.O. BOX 957 STATION B OTTAWA, ON K1P 5S7 CANADA			HOFFMANN, JOHN M	
			ART UNIT	PAPER NUMBER
			1731	

DATE MAILED: 06/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/973,778

Applicant(s)

OUELLET ET AL.

Examiner

John Hoffmann

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 May 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-21,24 and 25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-21,24 and 25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 20 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

There is no support for the added language of "Fourier Transform Infrared Spectroscopy."

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 4-21, and 24-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention

Claim 1 it is unclear what is meant by "in resistant" (line 6). There is no antecedent basis for said "cores" layer (step e). There is no antecedent basis for "said temperature to which said second structure undergoes elastic temperature" (last three lines).

Claim 6: there is confusing antecedent basis for the temperature. The first structure has various temperatures. It is unclear if the ramping of claim 6 is in addition to the ramping of claim 1, or if it further defines it. The same applies to claims 7, 10, 11.

It is unclear if the maintaining in claims 12-13 is the same as the "continuing to subject" of claim 1, or if it further defines it. There is confusing antecedent basis for the temperatures. Claims 18-19 are indefinite for substantially the same reasons.

Claim 20: the term FTIR is indefinite as to its meaning.

Claim 21 is not understood – there is no antecedent basis for most of the terms, such as "the raw material gas", "the oxidation gas N₂O", and "the total deposition pressure".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4-8, 12, 14-15, 17-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ojha.

Claim 1: if Ojha does not teach cooling, it would have been obvious to cool so as to make handling and storage easier and cheaper.

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Ojha does not disclose the specifics of claim 3. It would have been obvious to have the first heat treatment start out at a stabilized temperature (such as room temperature, or the PECVD temperature) because there is no indication the temperature should be fluctuating, and because it is easier to have something at the temperature of its surroundings, than to keep changing it. IT would have been further obvious to repeat the Ojha process on an automatic basis, wherein all of the steps are identical for each batch, (i.e. that they are predetermined by the setting up of the process). The motivation for this is: to make lots of waveguides which are all identical, and because it would be cheaper to have it done automatically, than manually. It would have been obvious to stabilize the wafer to room temperature when finished. Also see col. 4, lines 56-60 which indicates a first starting temperature.

Claims 4 See col. 2, lines 42-43.

Claim 8: see col 4, line 60.

Claim 12: see col. 4, lines 36-37.

Claim 14: see col. 3, line 41.

Claim 15: Col. 3, line 41 discloses using an inert gas, but there is no disclosure of nitrogen, it would have been obvious to use nitrogen because it relatively inexpensive: air is over 70% nitrogen.

Claim 17: it would have been obvious to use a flow of inert gas so as to remove the hydrogen that the Ojha process removes. As to the specific value: such would have been obvious depending upon how many wafers are being processed in a batch. It is

noted that 1 liter/minute for one wafer would likely produce different results as compared to using the same 1 l/min for 1000 wafers.

Claims 18-19 would have been obvious for the same manner claim 3 was.

Claim 21: the claim does not require the specific flows: therefore it is deemed that claim 21 is interpreted as "if there is an SiH₄ flow, then it is fixed at...." Since Ojha does not have any of those flows, the "if..." condition is not met, and therefore the "then it is fixed..." limitation is not required.

As to the language: "is varied among the following choices" has never been interpreted by the courts (to the best of Examiner's knowledge), nor has any similar language. It is deemed the that the broadest reasonable interpretation is that it is a group which comprises the listed members. (A group which consists of the members is also a reasonable interpretation, but it is narrower in scope). Therefore the claimed group is open to having other members such as: 30 to 300 seconds at from 840 to 930

C. Ojha meets this: col. 2, lines 42-43.

Claims 23-24 : see col. 3, lines 62-65.

Claim 22 is clearly met.

Claim 28 does not require any step. Note claim 26 has explicit steps: depositing, subjecting, etc. Rather claim 28 only states what "is". Further it states that the sacrificial layer is removed - i.e. it no longer is part of the wafer. Thus it is deemed that any of the claim 28 layers can be removed. When one looks at the starting Ojha, one cannot tell whether it is one where there "is" various removed layers which is removed. Thus it is deemed that there is no structural limitations as to what "is" on the wafer.

Claims 24-25 merely state what is - there is no step of depositing recited. In as much as applicant has set forth that something that "is" need not remain throughout the process (see claim 28, lines 3-4). The prior art need not have something. One cannot tell by looking at the Ojha method whether the wafer was one where all of the "is" things had occurred. There has to be some manipulative difference between the claims and the prior art.

Claims 6-7 and 10: the claims do not specify the temperature of what. It is deemed such can be the temperature of the furnace. Ojha does not disclose how the furnace is heated to its operating temperatures. It would have been obvious to not heat the furnace too quickly, otherwise it could experience thermal shock and spalling. The ramp rate would have been an obvious matter of design choice. The same when shutting off the apparatus - it would have been obvious to ramp it down at any desired speed that is not too fast so as to cause thermal shock.

Claim 20: examiner is only aware of 3 dimensions: 4 if time is a dimension. It is deemed that Ojha's process occurs in 7 dimensions in as much as Applicant's invention is. It would have been obvious to set the various parameters to be constant, because if they vary, one would get varying products. The temperature would be inherently predetermined by the artisan, either explicitly or by accident. As to Post deposition thermal treatment – all of the disclosed thermal treatments are post-deposition. The selecting step is simply a mental step – with no manipulative difference.

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As to the observed characteristics: it is deemed that this is to be interpreted as: "if there are observed FTIR characteristics, then...." Ojha does not have these characteristics, therefore the "if..." condition is not met, and the "then..." result is therefore not required.

Claims 9, 11, 13, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ojha as applied to claim 1 above, and further in view of Liu 5094984.

Ojha does not teach the PECVD temperature (i.e. the first predetermined temperature that the wafer is prior to the heating for annealing). Col. 7, lines 29-31 of Liu discloses that the preferred temperature for PECVD is 300-450; it would have been an obvious matter of design choice and/or routine experimentation to use a temperature about 400 C, since this is what is preferred.

Claim 11: see how claims 6-7 and 10 are met.

Claim 13: see col. 2, lines 40-45 of Ojha.

Claim 16: if there is any nitrogen, it would have been obvious to have it constant for at least part of the process, so as to keep all the parameters constant.

Claims 1, 4-21, and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grant 6044192 in view of Ojha 5979188.

Grant discloses the invention as claimed – except for the layer on the reverse of the layer. Ojha discloses having that stress layer so as to prevent warping. It would

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have been obvious to add a layer to the Grant wafer on the reverse side, so as to prevent warping – as taught by Ojha.

It is noted that Grant discloses depositing various layers (claim, 3, lines 1-10) followed by heat treating steps. However there is no disclosure of any of those layers being a core layer. It is noted that Applicant has not defined the term “core layer” in any manner which would exclude the Grant layers. Present claim 1 does not include any cladding step so as to actually create a core from the core layer. Being a “core” is an intended function which does not give a manipulative difference to the claim. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

AS to the stabilization temperature – it is deemed that room temperature – or whatever temperature the Grant wafer is (prior to the heat treating) is the stabilization temperature. The term has not been defined/limited to anything which would exclude such a limitation.

As to the dependent claims: The limitations would have been obvious for substantially the same reasons that the limitations would have been obvious where Ojha was the primary reference.

Response to Arguments

Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

There is an assertion as to what "FTIR" means. There is no evidence which supports this. There is no evidence that one of ordinary skill in the art would know that this is what it means.

As to the time for annealing – it appears that there is a typographical error. Regardless, Examiner is uncertain as to whether the argument is understood. The only part that Examiner understands: Ohja does not teach annealing for 30 minutes. As indicated above, Ohja does teach that it is known to anneal for over 30 minutes: see col. 1, lines 27-29.

It is further argued that Ohja does disclose the backside compensating layer. It is deemed that the teaching at col. 3, lines 62-65 of Ohja clearly shows a layer that reads on the claimed buffer layer.

The argument(s) relating to stress level and figure 10 are noted, but it is unclear how they relate to any claimed limitations. Features from the specification are not incorporated into the interpretation of the claims.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

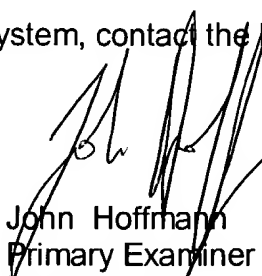
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Hoffmann whose telephone number is (571) 272 1191. The examiner can normally be reached on Monday through Friday, 7:00- 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John Hoffmann
Primary Examiner
Art Unit 1731

6-7-04

jmh